

EXHIBIT C

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

<hr/>)	
ORACLE AMERICA, INC.)	
)	
Plaintiff,)	
)	
v.)	Case No. CV-03561-WHA
)	
GOOGLE, INC.)	
)	
Defendant.)	
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**EXPERT REPORT OF
PROFESSOR JAMES R. KEARL

(CORRECTED March 21, 2016)**

March 18, 2016

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8.1.4 Next Best Non-Infringing Alternative #4: Develop Android in Alternative Programming Language, with (Possibly) Fewer Apps Available and Lower Market Share

56. Dr. Leonard argues that Google could have written Android in an alternative programming language (or otherwise not used the 37 Java APIs in Android) and not undertaken any of the actions discussed directly above.⁹⁰ The impact of this choice would be a possibly smaller number of apps available on Android, and a possibly smaller market acceptance (and market share) of Android.

57. Determining the effect on Google profits under this alternative is more complex. When there are fewer Android mobile units (primarily smartphones, but also tablets) Google makes less money from ads served to users of Android devices. If there are fewer Nexus phones, Google also make less on phone sales. With fewer Android phones—either its own or those produced by OEMs using the Android platform— Google also makes less on Google Play sales.

58. The decreased revenues are somewhat offset by decreased costs, however. Google also does not pay TAC for the ad revenue that it does not receive when there are fewer Android units. Moreover, if Google does not sell a Nexus phone, it does not incur the cost of making that phone, and if Google does not sell an app or song or movie through Play, it does not pay the app developer or musician or movie owner.

59. The lost Android profits are partially offset in that when there are fewer Android units sold, there are likely additional units sold of other smartphones that generate revenues for Google. Some of those people who owned an actual Android phone, but would not own a But-For Android phone, will almost certainly instead own another smartphone. Google makes money on the searches and ads on these alternative platform smartphones (it does not make hardware sales or Google Play sales, however). Of course, Google also incurs

⁹⁰ Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 185.

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costs – specifically Traffic Acquisition Costs – for the ad revenue it receives from these “displaced” Android users. Since the TAC that Google pays on Android phones is less than the TAC it pays on ad revenue from other mobile platforms, Google makes less search-related profit when users switch from an Android phone to another smartphone, even when the amount of revenue Google receives from users’ search activities remains the same.

60. Thus, in order to calculate disgorgement damages under this non-infringing alternative, one needs to estimate: (1) the reduction in Android market acceptance (units) due to the use of an alternative set of APIs; (2) how much Android revenues decrease due to the decrease in Android users; (3) how much Android costs decrease due to the decrease in Android users; (4) what alternative smartphones (on what platforms, i.e., iPhone, Blackberry, Windows Phone, etc.) these displaced Android users would use instead; (5) what revenues Google would receive from these displaced Android users; and (6) what increased TAC and other costs Google would incur from the displaced Android users.

8.1.4.1 Android Market Share Decrease Due to Non-Java VM

61. Dr. Leonard employs a model of smartphone demand contained in the Economics PhD dissertation of Min Jung Kim.⁹¹ One variable in Dr. Kim’s model is the expected utility of

⁹¹ Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, paras. 186-195.

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apps available on each smartphone platform.⁹² Dr. Leonard applies the Kim model to estimate the decrease in market acceptance of Android if fewer apps were available on the Android platform.⁹³

62. While the specifics of Dr. Leonard's application of this model are complex, the intuition is straightforward. First Dr. Leonard calculates the number of apps that have appeared on the daily Top 100 downloaded apps for Android over the period 2012 to 2015.⁹⁴ Dr. Leonard finds that there are a total of 3,642 unique apps that appear over this four-year period with an average of about 1,200 unique apps appearing in a given year.⁹⁵ Dr. Leonard then determines which of these Top 100 apps fit the following criteria:

- a) Google Apps: Apps written by Google (such as Google Maps)
- b) C++ Apps: Apps that were written in C/C++ (i.e., written using the NDK)
- c) Dual-Home Apps: Apps that also are written for iOS

⁹² Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 189. The expected utility of available apps is a function of both the number of apps being considered as well as the share of downloads that each app has in a given month. It is common when describing this part of the Kim model to refer just to the number of apps that are available.

⁹³ See Exhibits 4a and 4f. Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 186. Again, when I refer to there being fewer apps, I mean a lower expected utility of the fewer apps that are available. Not all apps have the same weight in the model because some apps lend more to expected utility – these are the apps with a higher share of downloads per month. In other words, if you were to only remove one app, you would get a different effect from the model if the app were something like Facebook with several million downloads each month or Pixelbite's Mutant with 175 downloads and which only appears once in the top 10 during the 2012-2015 time period.

⁹⁴ Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 191.

⁹⁵ Calculated from Dr. Leonard's "Exhibit 3d.3_apps.dta." Note that Dr. Leonard's data set associated with the top 100 apps has 16,178 observations. This is because in a given year, certain apps appear every month while other apps may appear only once. The Facebook app, for example, appears 48 times in his dataset because it is a top 100 app every month for the years 2012-2015.

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- d) Dual-Home Company Apps: Apps that were written for Android, but by a company that also writes apps for iOS
- e) Dual-Language Company Apps: Apps that were written for Android, but by a company that writes other apps using the NDK.⁹⁶

63. Dr. Leonard asserts that an app fitting any one of the above five criteria is an app that would be available on Android even if Android did not use the 37 Java APIs. Basically, Dr. Leonard argues that the ability to write the app in Java would not be important to having the app available on Android since either the app was not written in Java or the developer of the app had the demonstrated ability to write apps in a language other than Java. The five criteria as presented above can be thought of as being in descending order of the probability that they would hold in the counterfactual world, with a Google app being the most likely to be available in the But-For world and a Dual-Language Company app being less likely relative to a Google app. I am not asserting a position on whether Dr. Leonard's five criteria make sense with regard to what would be available to a But-For Android phone user, but I do test the sensitivity of his results to the five criteria.

64. After imposing the five criteria for app inclusion, approximately 1,000 apps are dropped from the 3,642 Top 100 apps in the analysis (said another way, Dr. Leonard's analysis considers the impact of having removed about 23% of the apps).⁹⁷ Dr. Leonard uses the Kim model to estimate the decrease in market demand for Android phones for not having

⁹⁶ Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 192. See also Expert Report of Dr. Gregory K. Leonard, February 8, 2016, Exhibit 2i.

⁹⁷ Dr. Leonard asserts in his deposition that he only uses the first three of the five criteria. (See Deposition of Dr. Gregory K. Leonard, March 11, 2016, pp. 370-371). This description appears to match my Scenario 2 as discussed later in this report at para. 67. However, Dr. Leonard's STATA code clearly uses all five of the criteria to arrive at his results. See Exhibit 3d.3.do from the Leonard backup materials and Expert Report of Dr. Gregory K. Leonard, Corrected March 10, 2016, para. 192.

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these apps available. For 2012, he finds that this decrease in the number of Android handsets purchased by consumers would be about 1.9% worldwide (about 9 million units of the 501 million units) and this reduction in Android handsets translates into a damages number of \$202.6 million.⁹⁸

65. Mr. Malackowski and Dr. Jaffe raise several objections to Dr. Leonard's use of the Kim model.⁹⁹ Putting aside the non-technical critiques by Mr. Malackowski and Professor Jaffe of Dr. Leonard's analysis, I believe that a limitation on the results of Dr. Leonard's analysis is that it focuses on the availability of Top 100 apps and the effect on Android sales. As noted previously, this focus does not address the core Oracle allegations that the use of the 37 Java APIs allowed a much larger number of miscellaneous apps (not limited to the most popular apps) to be available quicker, and that the greater app availability allowed Android to succeed where it otherwise would not have succeeded (or to obtain market share faster than it otherwise would have obtained it). Thus whether, and to what degree, a reduced number of top apps would have affected the demand for Android phones is not exactly the right question (even if Dr. Leonard has a reliable method for answering the

⁹⁸ See Exhibit 4a.1. See also Expert Report of Dr. Gregory K. Leonard, February 8, 2016, Exhibits 3d.1, 3d.3, and 3d.5.

⁹⁹ Responsive Expert Report of James E. Malackowski, February 29, 2016 (Corrected), paras. 45-62; Reply Expert Report of Professor Adam Jaffe, Ph.D., February 29, 2016, paras. 70-86. Several of the criticisms put forward by Mr. Malackowski and Professor Jaffe do not go to the economics of the model, namely, Mr. Malackowski raises questions about whether the Kim model has been peer-reviewed and whether a discrete choice model may be used to calculate damages in litigation. To these points I would say, first, that a doctoral dissertation is carefully reviewed by the academic committee supervising the Ph.D. student and Dr. Kim's degree is from a respected program. Second, the discrete choice model is accepted within the economics community with the person who brought it to the discipline, Daniel McFadden, having earned the Nobel Prize for his work. Furthermore, the Berry model used by Dr. Leonard has been not only peer-reviewed but also cited in other peer-reviewed articles over 500 times. I have no reason at this juncture to criticize the economic theory behind what Dr. Leonard has presented. However, I am unable to address certain facets of Dr. Leonard's work because the data used to estimate the Kim model are not available to test. For example, I have not been able to test whether the coefficients relied upon by Dr. Leonard might vary over time. As a result, I have provided various sensitivity tests to Dr. Leonard's calculation of alternative market shares and diversion ratios as will be shown later in this report.

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question he posed). On the other hand, the way the Kim model works is that platform market shares are a function of the *weighted* availability of apps on that platform, with the weights determined by the popularity of the app (measured by the relative number of downloads of that app). Thus, the impact on platform market share of not having a few very frequently downloaded apps available might be similar to the impact of not having very many infrequently downloaded apps. Of course, the equivalence point depends on the number of apps in each “removal bucket” and the download frequency of those apps.

66. Nevertheless, and without getting into the complexity of Dr. Leonard’s adaptation of the Kim model, I have tested the sensitivity of his results to three factors or parameters: (1) the number of apps available on Android, (2) the β coefficient he uses from Kim’s model, and (3) the σ estimate from Kim’s model. I find that Dr. Leonard’s damage numbers are sensitive to each of these elements of his analysis and I detail this sensitivity in Exhibits 4a.1, 4a.2, 4c.1, 4c.2, 4d.1, 4d.2, 4e.1, and 4e.2.

67. With regard to the number of apps available, I tested the sensitivity of Dr. Leonard’s model to having a differing number of apps available in his non-Java VM counterfactual. Specifically, instead of having all apps that meet Dr. Leonard’s criteria for inclusion as noted above, I systematically remove these inclusion criteria starting with the fifth criteria – Dual Language Company apps.¹⁰⁰ By sequentially removing these criteria, the number of applications that are available in a counterfactual scenario is reduced. From this, I define three scenarios, namely:

- a. Scenario 1: In addition to eliminating the apps that Dr. Leonard removes in his analysis, I remove the Dual-Language Company criteria for inclusion.

¹⁰⁰ I am not making any assertion here about whether apps from any of Dr. Leonard’s five criteria would or would not be available in a non-Java VM world. I’m merely using these categories to remove apps to see how fewer apps impacts Dr. Leonard’s damages number.

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b. Scenario 2: Cumulative to Scenario 1, I remove the Dual-Home Company inclusion criteria.

c. Scenario 3: Cumulative to Scenario 2, I remove the Dual-Home inclusion criteria.

68. In Scenario 1, I found that the Dual-Language Company criteria affected very few apps and that there was virtually no difference in any of Dr. Leonard's estimates after removing them. This can be seen in Exhibit 4a.1.

69. In Scenario 2, I removed the Dual-Home Company criteria from Scenario 1. This resulted in 50% of the apps being unavailable in the But-For world (as compared to the 23% that Dr. Leonard determined in his analysis). Reducing the number of apps to this level results in Dr. Leonard's model estimating an approximately 8% loss in Android users which results in damages of about \$930 million.¹⁰¹

70. Finally, in Scenario 3, I removed the Dual-Home criteria from Scenario 2. This resulted in only 10% of the apps remaining in the model. In this scenario, there would be an approximately 20% loss in Android users and an estimate of damages of more than \$3.5 billion.¹⁰²

71. Next, I tested the sensitivity of Dr. Leonard's analysis to the two parameters from the Kim model, namely the β and σ coefficients, which are measures of particular elements of the app market to consumers. Both of these parameters impact Dr. Leonard's measurement of the percent of lost Android users and his diversion ratios. However, roughly speaking, β has a larger impact on the percent of lost Android users and σ has a larger impact on the

¹⁰¹ See Exhibit 4c.1.

¹⁰² See Exhibit 4c.2.

diversion ratios. Exhibit 4a.1 shows these impacts for alternative estimates of β and σ .¹⁰³

As the β coefficient decreases, damages decrease and as β increases, the damage estimate increases; likewise, as σ moves up or down it affects damages. These effects can be seen in Exhibits 4a.1, 4a.2, 4e.1, 4e.2, and 4e.3.

72. I note that neither Mr. Malackowski nor Professor Jaffe offer an alternative estimate of the decrease in market share that would be experienced by a non-infringing Android, although some of their statements suggest that they believe a non-infringing Android would have zero market share.¹⁰⁴ In the previous phase of this litigation, Professor Cockburn estimated that the decrease in market share of a version of Android that did not use the 37 Java APIs would range from 8% to 19%.¹⁰⁵ This conclusion was based on a conjoint analysis by Dr. Shugan, wherein he tested the decrease in willingness to pay by smartphone consumers when the number of apps decreased from 100,000 to 40,000 and 6,000.¹⁰⁶ Dr. Cox adopted a mid-point of Professor Cockburn's estimates and assumed for his opinions that the reduction in market share that a non-infringing Android would experience was 13.55%.¹⁰⁷

¹⁰³ I test values of β and σ that are within a typical 95% confidence interval given the standard errors around which each are measured. The standard error on β is 0.004 (as noted in Kim's Table 2.7) and the standard error on σ is 0.075 (as noted in LEONARD0000001.pdf).

¹⁰⁴ See, for example, Reply Expert Report of Professor Adam Jaffe, Ph.D, February 29, 2016, paras. 28-29 and 35. See also Responsive Expert Report of James E. Malackowski, February 29, 2016 (Corrected), para. 60: "Assuming Android would have existed without Google's infringement is also speculative."

¹⁰⁵ Expert Report of Dr. Iain M. Cockburn, Revised September 15, 2011, para. 472. I realize that portions of the expert opinions in the previous litigation were ruled inadmissible by the Court, and that these rulings implicated some of the analyses I discuss here. To the degree my referencing of these previous analyses and conclusions is inappropriate, this discussion should be deleted.

¹⁰⁶ Expert Report of Professor Steven M. Shugan, September 12, 2011, pp. 9, 14, Appendix D, and Exhibits 3a and 4a.

¹⁰⁷ Expert Report of Dr. Alan J. Cox, Revised April 15, 2012, pp. 41 and 58.

73. I conclude a likely decrease in Android market share due to a smaller number of apps available would be a range of 13.55% to approximately 20% (the percentage varies year to year). Using Dr. Leonard's diversion ratios, recapture rates, and cost estimates results in damages between \$2.08 billion and \$3.51 billion as shown in Exhibits 4g and 4c.2.¹⁰⁸

8.1.4.2 Change in Android Profits Due to Decreased Android Market Share

74. Dr. Leonard calculates the change in Google profits from a decrease in Android market share by first reducing Google Search ad revenues from Android phones proportional to his estimated market share decrease. He also decreases Google Play and Google Android hardware revenues proportional to the estimated market share decrease and diversion ratios. Dr. Leonard then reduces the costs associated with these revenue categories (TAC, content costs for Google Play revenues, and COGS for Hardware revenues) proportional to the revenue decreases in each. He does not adjust downward Android Operating Expenses (doing so would slightly increase his estimated damages total). This is a reasonable assumption given the relatively small market share decrease he considers; for larger market share decreases it may be appropriate to adjust Operating Expense in proportion to the decrease in Android revenues.¹⁰⁹

75. In estimating the profit impact on Google, Dr. Leonard estimates the percent of "lost" Android users who would switch to an iPhone, and the Search ad profits that Google would make from these additional iPhone users. He uses the diversion ratios from the Kim model to estimate that between 40.5% and 44% of the lost Android revenue would return via the

¹⁰⁸ The 13.55% reduction in market share noted above does not vary by year. Using that number in all years results in damages of \$2.08 billion as shown in Exhibit 4g. For comparison purposes, using a 20.7% reduction (which is the weighted average market share reduction in Exhibit 4a.2 for Scenario 3) results in damages of \$3.18 billion and is shown in Exhibit 4h.

¹⁰⁹ For Exhibits 4a.1, 4a.2, and 4c.1 - 4e.2, I have followed his convention for the sake of comparison.

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diversion of users to the iPhone.¹¹⁰ Dr. Leonard assumes that these new iPhone users would have the same search intensity as they did when using an Android phone thus the “per phone” Search ad revenue would be unchanged. However, Dr. Leonard assumes that the TAC that Google pays Apple for this Search ad revenue would be higher than the TAC that Google pays for Search ad revenue on an Android phone.¹¹¹

76. I find that Dr. Leonard’s cost change calculations are reliable and accurate. If anything, these calculations likely overstate the profit loss to Google from a decrease in Android market share. Dr. Leonard assumes that about half of the “lost” Android users would switch to an iPhone, while the remainder would do something else (switch to another smartphone, switch to a feature phone, or have no phone at all). Dr. Leonard assumes that Google would not recapture any search ad revenue on any of the “lost” Android users who do something else. This is likely incorrect. Many of these users would likely switch to a Windows Phone or a Blackberry or some other mobile platform (such as are listed anonymously on Case No. CV 10-03561 WHA, Response to Docket No. 1436, “Google Search Distribution Agreements with Non-Android Mobile Operating System Partners”), and Google would be expected to earn Search ad revenue on these non-iPhone alternative platforms. Thus, Dr. Leonard’s calculations likely overstate the decrease in Google profit from a decrease in Android market share.

¹¹⁰ Expert Report of Dr. Gregory K. Leonard, February 8, 2016, Exhibit 3d.2. See also Exhibits 4c.3, 4d.3, and 4e.3.

¹¹¹ Dr. Leonard assumes that the Google TAC for search ad revenue on an Android phone is 15%, while the TAC for search ad revenue on an iPhone is 36%, based on GOOG-00130338 at 343.

8.1.5 Next Best Non-Infringing Alternative #5: Do Not Develop Android at All

77. Mr. Malackowski and Professor Jaffe conclude that another non-infringing alternative from Google would have been to not pursue the Android project at all. Mr. Malackowski concludes that the total profits Google has made from Android total \$22.6 billion. He then uses a 36% apportionment factor to arrive at his disgorgement damages estimate of \$8.8 billion.¹¹² Mr. Malackowski does not attempt to calculate the But-For profits that Google would have made without Android, and argues that consideration of But-For alternatives in a disgorgement analysis is inappropriate.

78. Dr. Leonard does not explicitly consider this non-infringing alternative in his disgorgement alternatives, although he does calculate the difference in Actual Google Profit (with Android) and But-For Google profit (without Android) in his Exhibit 1a.3. He concludes that the incremental profit that Google has received, from having Android, is \$7.7 billion.

79. As noted above, I believe that the correct economic method to calculate the profits attributable to the infringement is to compare actual profits to But-For profits under the next best non-infringing alternative. Thus, if the next best non-infringing alternative is “no Android” I would perform a calculation identical to that in Dr. Leonard’s Exhibit 1a.3.¹¹³ In performing this calculation, I believe Dr. Leonard is correct to deduct the total Android Engineering PM costs, Android Legal Costs, and Incremental Search and Advertising Expenses. If Google had not pursued the Android project at all, these costs would not have been incurred.

¹¹² Responsive Expert Report of James E. Malackowski (Corrected) February 29, 2016, Figures 12 and 13.

¹¹³ Dr. Leonard’s Exhibits 1a.3 and 1b (iPhone Recapture Adjustment) are presented here as Exhibits 5a and 5b.

any advantage to Google, I would recommend a disgorgement award of \$0, and not the amounts of \$32.4 million or \$56.3 million offered by Dr. Leonard.¹⁴⁰

103. In the event that the jury concludes the use of the 37 Java APIs was not essential to Android, but did increase the market success of Android, the apportionment task becomes more difficult. But if the jury concludes that the effect is fully measured by a decrease in market share then as noted above, the numbers range between \$2.08 billion and \$3.51 billion.

10.3. The 2006 Sun/Google Negotiation

104. In the previous phase of this litigation, the damages analyses focused heavily on the licensing negotiations between Sun and Google. In this current phase of the litigation these negotiations have barely been mentioned. I understand that Oracle is not seeking as a damages remedy a lost license fee. Therefore, the amount Sun would have been willing to accept to license the subject copyrights to Google may be irrelevant. However, it is notable that the amounts of damages at play now (under some non-infringing alternative scenarios) are large relative to the amount that Sun was apparently willing to accept to license all Java intellectual property.

105. I also note that the approaches taken by the experts in this current phase of litigation are different from the first round of expert analysis made in the previous round of Oracle v. Google litigation addressed in my 2012 report. As such, this report addresses only the current approaches put forth by Dr. Leonard, Mr. Malackowski and Professor Jaffe.

¹⁴⁰ Expert Report of Dr. Gregory K. Leonard, February 8, 2016, Exhibit 3e.

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Respectfully submitted this 21st day of March, 2016



J.R. Kearl

Exhibit 4h (Corrected)**Dr. Gregory K. Leonard's Exhibit 3d.1 Under Constant 20.7% Share Loss****Revenue Loss Analysis from Jan. 2008 through Dec. 2015**

	2008	2009	2010	2011	2012	2013	2014	2015	Total
<i>(in millions)</i>									
<u>Revenue (Share Loss)</u>									
Ads	\$ 0.1	\$ 3.3	\$ 24.9	\$ 117.9	\$ 445.5	\$ 964.5	\$ 1921.7	\$ 2516.3	\$ 5,994.1
Hardware	--	--	23.8	0.0	62.8	172.8	69.8	80.7	409.9
Apps	0.0	0.2	1.7	7.5	28.2	297.1	581.7	733.8	1,650.3
Digital Content	--	--	--	3.1	21.9	61.6	115.3	141.1	342.9
Total	\$ 0.1	\$ 3.5	\$ 50.4	\$ 128.4	\$ 558.4	\$ 1,496.0	\$ 2,688.5	\$ 3,471.8	\$ 8,397.3
<u>Cost of Sales (Share Loss)</u>									
TAC	\$ 0.0	\$ 0.6	\$ 8.5	\$ 22.4	\$ 114.2	\$ 271.4	\$ 543.5	\$ 711.7	\$ 1,672.5
Hardware	--	--	--	0.0	70.5	207.4	86.6	115.3	479.7
Apps	--	--	--	0.0	12.9	177.0	217.1	186.3	593.3
Digital Content	--	--	--	4.9	35.1	77.9	122.1	148.7	388.6
Infrastructure & Other COS	--	--	--	14.1	19.7	25.5	60.5	90.9	210.6
Operations	0.0	0.1	0.9	--	--	--	--	--	1.0
COS (including DTC)	0.0	0.1	22.7	--	--	--	--	--	22.8
Total	\$ 0.1	\$ 0.8	\$ 32.2	\$ 41.3	\$ 252.3	\$ 759.2	\$ 1,029.9	\$ 1,252.8	\$ 3,368.5
<u>Gross Profit</u>									
Total Gross Profit	\$ 0.1	\$ 2.7	\$ 18.2	\$ 87.1	\$ 306.1	\$ 736.9	\$ 1,658.6	\$ 2,219.1	\$ 5,028.8
Gross Margin (%)	41.4 %	78.0 %	36.1 %	67.8 %	54.8 %	49.3 %	61.7 %	63.9 %	59.9 %
<u>Operating Expenses (Share Loss)</u>									
Android Engineering PM	\$ --	\$ --	\$ --	\$ --	\$ --	\$ --	\$ --	\$ --	\$ --
Android Marketing	--	--	--	--	--	--	--	--	--
Android Legal	--	--	--	--	--	--	--	--	--
Android Sales and Other	--	--	--	--	--	--	--	--	--
Android General and Administrative	--	--	--	--	--	--	--	--	--
Incremental Search and Advertising Expenses	0.0	0.3	2.1	9.7	36.8	79.7	158.8	207.9	495.2
Total	\$ 0.0	\$ 0.3	\$ 2.1	\$ 9.7	\$ 36.8	\$ 79.7	\$ 158.8	\$ 207.9	\$ 495.2
Android Advertising Share Loss	20.7 %	20.7 %	20.7 %	20.7 %	20.7 %	20.7 %	20.7 %	20.7 %	
Google Play Share Loss	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	
Diversion Ratio	44.0	44.0	44.0	44.0	44.0	41.0	40.5	42.3	
Search Share	100.0	76.0	67.3	76.9	67.1	64.9	65.2	68.6	
Gross Loss of Profit	\$ 0.0	\$ 2.4	\$ 16.1	\$ 77.4	\$ 269.3	\$ 657.2	\$ 1,499.9	\$ 2,011.2	\$ 4,533.6
iPhone Offset	(0.0)	(0.9)	(5.3)	(31.3)	(110.2)	(214.8)	(421.0)	(570.8)	(1354.4)
Net Loss of Profit	\$ 0.0	\$ 1.6	\$ 10.8	\$ 46.1	\$ 159.1	\$ 442.4	\$ 1,078.8	\$ 1,440.4	\$ 3,179.2

Sources:

Expert Report of Dr. Gregory K. Leonard dated February 8, 2016 Exhibit 3d.1.

Exhibit 4a.2, Percent Change in Android Handset Sales under Scenario 3.